

APPENDIX 3.D-

The Wide-Angle View from a First Responder

Bob Athanas, President, SAFE-IR, Inc.

Webster's dictionary defines *Emergency* as "an unknown combination of circumstances which calls for immediate action." In today's society, that immediate action most often comes from first responders and, specifically, firefighters. Firefighters, like the military, utilize many tools or weapons. Their thorough understanding of these tools, their functions and limitations is essential for the proper application of the tool and often the safety and survival of the user. Thermal imaging cameras are rapidly becoming one the most valuable tools available for firefighters. Bob will briefly touch on the range of needs and applications of thermal imaging cameras for the fire service. He will discuss the unquestionable value of the more than 30 models of thermal imagers introduced to the fire service in the last 6 years and how their effectiveness is complicated and compromised by inconsistency. He will offer some examples of how thermal imaging cameras may be simplified through the establishment of standards for manufacture, display, and function. Then he will offer a common sense explanation of why these standards will positively impact the purchase, training and safe use of thermal imagers in the dynamic and stressful situations faced by firefighters.

Biography:

Bob Athanas is a 28-year veteran of the fire service who began using a thermal imager in 1991 and started teaching thermal imaging to firefighters 1996. He is currently assigned to FDNY Special Operations and is President of SAFE-IR, INC., an internationally recognized fire service thermal imaging training and consulting organization. Bob is an instructor for the NYS First Line Supervisors Training Program, FDNY Chief Officers Command Course and Technical Rescue School, FDIC, Firehouse Expo, and many colleges, regional, municipal and state fire schools. He represents end users as a member of the NFPA Committee on Electronic Safety Equipment.


NIST Thermal Imaging Research Needs for
First Responders Workshop

The Wide Angle View from a First Responder

Bob Athanas
SAFE-IR, INC.

December 9, 2004
NIST Headquarters, Gaithersburg, MD

NIST December 9, 2004



American Fire Service

Frequently Operates

- Dynamic & Stressful Situations.
- Both Man Made and Natural.
- Reconstructed by NIST with their
"Simulation of the Dynamics of a Fire" reports.

LIFE & DEATH!

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American Fire Service

Resists Change -Newness

*“Hundreds of years of tradition
unimpeded by progress!”*

Embrace

Simplicity

+ Consistency

SAFETY Factor!

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The Wide Angle View from a First Responder

APPLICATIONS

*In every community across America,
Thermal Imagers have the potential to positively
impact almost every role firefighters are called
upon to perform in today's society.*

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APPLICATIONS

- Firefighting
 - All Types
 - All Phases
- Haz-Mat
- EMS
- Technical Rescue
- Exterior Search & Rescue
- Public / Media Relations
- More!

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APPLICATIONS

Although TIC availability exists in FD's

Users Operate with:

Inadequate, Inconsistent & Inaccurate:

Information

+ Terminology

+ Instruction / Training

Misinformed / Confused Users!

Thermal Imagers are greatly underutilized!

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APPLICATIONS

*Since 1995 at any given time
there may be as many as;*

- + or – 10 TIC Manufacturers with
- + or – 20 TIC Models Available
- Different Technologies BST, VoX, Asi,
- Different Sizes, Shapes, Features

***NO Consistency in Models or Technology!!
Even when made by the same Manufacturer !***

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LIMITATIONS

NO Standards !

- Proper Training / Understanding
- Terminology
- Features
- Power Supply
- Reliability
- Overall Performance & Testing
- More!

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Switch Operation

- Press to **Turn On**
- Release to **Turn Off**
- Hold Down To **Turn Off**
- Press to **Turn Off**
- Release for **Stand By**
- Press for **Stand By**

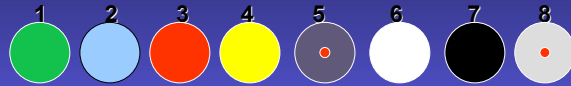


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Switches/Functions

Match the correct switch color with the Function



- | | |
|------------------|-------------------|
| a) On / Off | f) 2x Zoom |
| b) Stand By | g) Manual Shutter |
| c) Video Xmitt | h) A,B |
| d) Video Overlay | i) A,B,C,G |
| e) Image Capture | j) A,E,F |

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ICONS & INDICATORS

Standards MUST establish

1 Primary Indicator for each purpose!

NEED TO BE CONSISTANT & COMPATIBLE WITH PPE
TODAY FIREFIGHTERS USING DIFFERENT TI

MAKES
+MODELS
+MUTUAL AID



Confusion, Inconsistency = Rejection!

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Micro Bolometer "MODE" INDICATOR



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BATTERY POWER LEVEL

Operating Time-Full Charge

- 1 Hour
- 1 ½ Hours
- 2 Hours
- 3 Hours
- 4 hours
- 5 Hours
- 7 Hours

Establish a MINIMUM Operating range!

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BATTERY POWER LEVEL

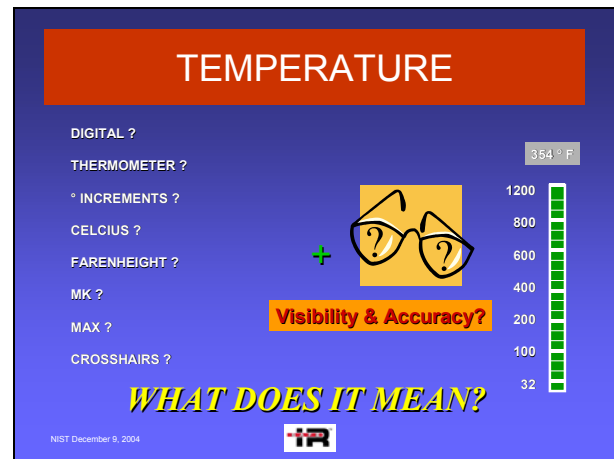
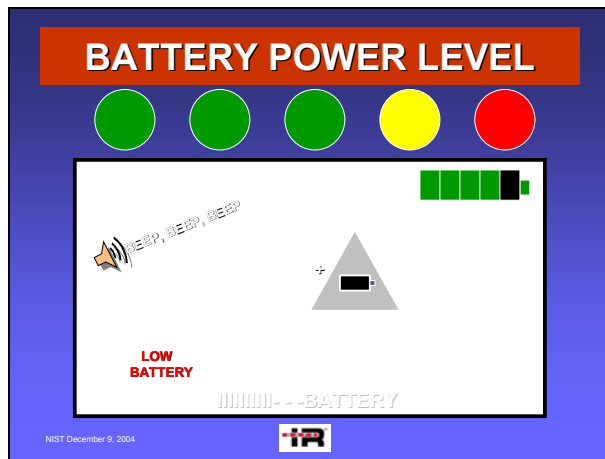
Power Standards

Power Level - Display
+ Performance -Time ?
+ Low Power Level-Time?

**How Much Time??
% Means Nothing !!**

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TEMPERATURE & COLOR

Consistency

- 2 COLORS
- 3 COLORS
- FULL COLOR
- Transparent Colors
- Color vs. Temp
- HOT = Color
- Cold = Color
- BLACK, WHITE SHADES OF GRAY

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TEMPERATURE - COLOR

RED Appears in at least 10 Cameras!

- Appears @ different Temperatures
288°F, 302°F, 392°F, 600°F, 900°F, 1112°F.....
- Appears then Disappears and
- Re-appears Again or
- Appears and stays on and on and on and on.....

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TESTING / STANDARDS

What the average Firefighter doesn't see
But relies on NFPA /NIST to prove;
Product Performance for HIS SAFETY!

- HEAT
- FLAME
- WATER
- IMPACT
- DROP
- DUST
- ABRASION
- VIBRATION
- CORROSION
- RFI
- OVERALL PERFORMANCE !

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PURCHASE

Allows for Product Comparison

- Specifications
- Terminology
- Tests
- Performance Results
- Numerical Representation

Standards will simplify this review!

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TRAINING

With standards for Thermal Imaging
Cameras training may also be simplified
and standardized. **BASIC OPERATION!**

Then the user can concentrate on proper
image interpretation and tactical
application without focusing on function
variables and durability!

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SUMMARY

STANDARDS will create:

- Consistency
- + Reliability
- + Simplicity (Users)
- + Accountability
- + Responsibility (Mfrs.)

SAFETY for FIREFIGHTERS

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